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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,681

01/05/2007

Maurits Van Camp

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EXAMINER

MCGUTHRY BANKS, TIMA MICHELE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

06/11/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,681	<b>Applicant(s)</b> VAN CAMP ET AL.	
	<b>Examiner</b> TIMA M. MCGUTHRY-BANKS	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-16, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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**DETAILED ACTION*****Status of Claims***

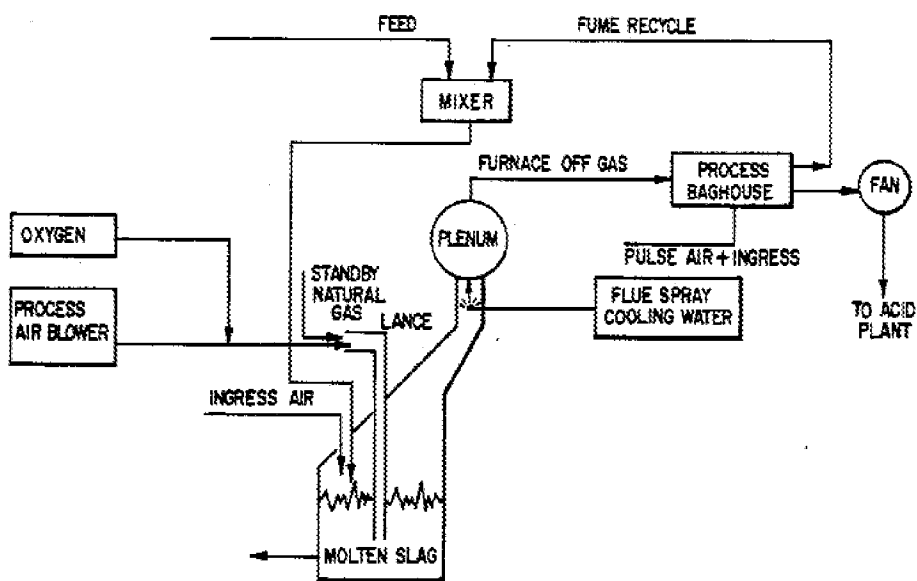
Claims 1-11 are cancelled, Claim 12 is currently amended, Claims 13-20 are as previously presented and Claims 21 and 22 are withdrawn.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 12, 15, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Player et al (US 5,256,186).

Player et al teaches treating dusts and concentrates as shown in the figure:



The feed comprises Fe, Zn and Pb as shown in TABLE 1. The bath is agitated by the submerged gas injection through turbulence (column 2, line 24). The final fume comprises Zn and Pb (see TABLE 3). The fume is recycled to the furnace. According to the American College Dictionary

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definition of valorize<sup>1</sup>, the process of Player et al reads on giving value to the fume comprising Zn and Pb since it is being reused. The slag contains Fe (column 2, line 14). Flux is added (line 3), e.g. silica (TABLE 1). Regarding equations, the first range is 1.80-6, the second range is 0.133-1 and the third range is 5-15. The first and third ranges overlap the claimed range. It would have been obvious to one of ordinary skill in the art at the time the invention was made that Player et al reads on the claimed ranges, since in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05.

Regarding Claim 15, the slag has 3% MgO. Regarding Claim 16, the slag contains Cu, Au and Ag (Table 3). Regarding Claim 19, the furnace is a submerged lance (column 2, lines 23 and 24).

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fugleberg (US 5,199,974).

Fugleberg teaches recovering metal components of metallurgical waste (title). Jarosite was smelted in a flash smelting furnace; the jarosite contained Zn, Pb and Fe (column 3, lines 54-64). The slag contains Fe, and the dust obtained contains Zn and Pb (column 4). The Zn and Pb were recovered. It would have been obvious to one of ordinary skill in the art at the time the invention was made that Zn and Pb are valorized, since Fugleberg teaches that these metals are valuable (column 2, line 35). Silica sand or lime is added (column 2, lines 53-55). The range for the first equation is 1.61-4.20, which overlaps the claimed range. Regarding MgO, applicant

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<sup>1</sup>Barnhart, C.L., ed. *American College Dictionary*. page 1342. New York, NY. 1970.

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does not claim that MgO must be present, and therefore it reads on zero. The range for the second equation is 0.1-0.27, which is within the claimed range. The amount of SiO<sub>2</sub> overlaps the claimed range. It would have been obvious to one of ordinary skill in the art at the time the invention was made that Fugleberg reads on the claimed ranges, since in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05.

Regarding Claim 13, the waste is from a hydrometallurgical precipitate (column 1, lines 22-24). Regarding Claim 14, the flux can be lime. Regarding Claim 15, no MgO reads on the claim.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fugleberg as applied to claim 12 above, and further in view of Baldock et al (US 5,282,881).

Fugleberg discloses the invention substantially as claimed. However, Fugleberg does not teach that the waste contains precious metals as claimed. Baldock et al teaches smelting metallurgical waste materials from leaching calcine (column 1, lines 13 and 14). The waste material includes Ag and Au (column 4, lines 41-43). Zn and Pb are volatilized and a molten copper solution is formed with Ag and Au. It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the waste material in Fugleberg could also contain Ag and Au, since both Baldock et al (column 1, lines 13-15) and Fugleberg (column 1, lines 22-25) both teach using waste materials from zinc hydrometallurgical processing such as jarosite and goethite.

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Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fugleberg as applied to claim 12 above, and further in view of SU 1048810.

Fugleberg discloses the invention substantially as claimed. Fugleberg teaches using burners but does not teach plasma burners as in Claim 19 or one or more plasma tuyeres as in Claim 20. SU '810 teaches a plasma unit for metal refining and melting with plasma submerging tuyeres situated in the melting chamber side wall (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the melting chamber in the process of Fugleberg, since SU '810 teaches that the metal refining process efficiency is increased, the construction is simplified and operation reliability is increased (abstract).

#### ***Allowable Subject Matter***

Claims 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The cited prior art does not disclose or suggest fuming a major part of Ge together with Zn and Pb as in Claim 17.

#### ***Response to Arguments***

Applicant's arguments, filed 5/1/2009, with respect to the rejection(s) of claim(s) 12-20 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Player et al (US 5,256,186) as stated above.

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***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johansson et al (US 4,571,260), listed on the IDS filed 5/1/2009, teaches reducing slag with agitation (column 2, line 67). The slag contains Zn, Fe and Pb (see figure). The final slag contains < 25% FeO (column 4, line 15). Zinc is volatilized and recovered. However, lead is recovered in the molten phase.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Wyszomierski/  
Primary Examiner  
Art Unit 1793

/T. M. M./  
Examiner, Art Unit 1793  
11 June 2009